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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,034	07/24/2003	Michael L. Crabtree	O02-075A	3716

26683 7590 10/19/2004

THE GATES CORPORATION
IP LAW DEPT. 10-A3
1551 WEWATTA STREET
DENVER, CO 80202

EXAMINER

SY, MARIANO ONG

ART UNIT	PAPER NUMBER
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3683

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/627,034

Applicant(s)

MICHAEL CRABTREE

Examiner

Mariano Sy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

1. The amendment filed on July 27, 2004 has been received.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re-claim 1 "disposed inward of an air spring interior" in lines 11-12. It is unclear if applicant is referring to --disposed inward toward an air spring interior--.

Re-claim 1 "disposed outward of an air spring interior" in lines 13-14. It is unclear if applicant is referring to --disposed outward toward an air spring interior--.

Re-claim 1 "an air spring interior" in lines 13-14. It is unclear if applicant is referring to the same or different air spring interior.

Re-claim 4 "disposed inward of an air spring interior" in lines 11-12. It is unclear if applicant is referring to --disposed inward toward an air spring interior--.

Re-claim 4 "disposed outward of an air spring interior" in lines 13-14. It is unclear if applicant is referring to --disposed outward toward an air spring interior--.

Re-claim 4 "an air spring interior" in lines 13-14. It is unclear if applicant is referring to the same or different air spring interior.

Re-claim 8 "disposed inward of an air spring interior" in lines 2-3. It is unclear if

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applicant is referring to --disposed inward toward an air spring interior--.

Re-claim 8 "disposed outward of an air spring interior" in lines 4-5. It is unclear if applicant is referring to --disposed outward toward an air spring interior--.

Re-claim 8 "an air spring interior" in lines 4-5. It is unclear if applicant is referring to the same or different air spring interior.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirtreiter et al. (U.S. Patent Number 3,897,941).

Re-claims 1, 4, 7, and 8 Hirtreiter et al. disclose an air spring sleeve (see fig. 11) comprising: an elastomer body 1; a first cord 17 embedded in the elastomer body, the first cord wound with a first helix angle with respect a sleeve centerline; a second cord 17 embedded elastomer body, second cord wound with a second helix angle with respect a sleeve centerline; first helix angle and second helix angle describe a differential helix angle (see col. 8 lines 1-5); first cord is disposed inward of air spring interior; second cord disposed outward of an spring interior as compared to the first cord; and the first helix angle greater than the second helix angle (see col. 8 line 8, note

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that either the inner or the outer cord may have a greater helix angle according to the claimed combination). Note that Hirtreiter et al. discloses different cord angles in the context of increasing the rigidity of the air spring sleeve (see col. 2, lines 54-58).

However Hirtreiter et al. was silent to disclose wherein the sleeve having a torsional strain less than approximately 0.5 degree. Note that all air spring sleeves are subjected to torsional strain and that the torsional strain of the air spring sleeve depends on several variables: the rotational relationship between a piston 22 and end plate 26, size of cords, cord's helix angle, size of air spring sleeve, operating pressures, and the length of compression and extension stroke.

It would have been obvious to one of ordinary skill in the art to have build the air spring sleeve of Hirtreiter et al. having a torsional strain less than approximately 0.5 degree, based on the variables recited above, in order to attain greater air spring sleeve rigidity.

Re-claims 2, 3, 5, 6, 9, and 10 Hirtreiter et al. disclose a general ranges of the helix angle of the cords. Note that the claimed ranges are within the general ranges disclosed by Hirtreiter et al. in the first ten lines of column 8. Further note that Hirtreiter et al. discloses different cord angles in the context of increasing the rigidity of the air spring (see col. 2 lines 54-58).

Accordingly, it would have been obvious to one of ordinary skill in the art to which the invention pertains at the time the invention was made to have optimized the helix angles according to the ranges of claims 2 and 3 in order to attain greater sir spring rigidity, see MPEP 2144.05.II. A and B.

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6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hirtreiter et al. in view of Crabtree (U.S. Patent Number 4,763,883).

Re-claim 11 Hirtreiter et al. fail to disclose aramid cord.

Crabtree disclosed the use of aramid (see col. 5, line 15) for reinforcing an air spring.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included aramid cord in Hirtreiter et al. air spring, according to the teachings of Crabtree, in order to reinforce the air spring.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariano Sy whose telephone number is 703-308-3427. The examiner can normally be reached on Mon.-Fri. from 9:00 A.M. to 3:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder, can be reached on 703-308-3421. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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M. Sy

October 13, 2004

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